

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s): John W. Linebarger et al. Confirmation No: 9876  
Serial No.: 10/020,062 Examiner: Thai D. Hoang  
Filing Date: 10/30/2001 Group Art Unit: 2616  
Title: SYSTEM & METHOD FOR SELECTING SPECTRUM

**Mailstop: Appeal Brief - Patents  
Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450**

**APPEAL BRIEF**

**Introductory Comments**

Pursuant to the provisions of 37 C.F.R. § 41.30 *et seq.*, the Assignee hereby appeals to the Board of Patent Appeals and Interferences (hereinafter “the Board”) from the claim rejections issued in the final Office action dated June 12, 2006 (hereinafter “the final Office action). A notice of appeal was filed on the same day as this appeal brief.

**Real Party In Interest**

The entire interest in the present application has been assigned to Sprint Communications Company, L.P. (hereinafter “the Assignee”), as recorded at Reel 012401, Frame 0638.

**Related Appeals and Interferences**

There are no prior or pending related appeals or interferences.

### **Status of Claims**

Claims 1-28 and 41-56 are pending in the application.

Claims 29-40 have been withdrawn in response to a restriction requirement.

Claims 13, 16, 17, 21 and 51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 56 is allowed.

Claims 1-12, 14, 15, 18-20, 22-28, 41-50 and 52-55 have been finally rejected.

Claims 1-12, 14, 15, 18-20, 22-28, 41-50 and 52-55 are being appealed.

### **Status of Amendments**

No amendments have been filed subsequent to the final rejections.

### **Summary of Claimed Subject Matter**

Independent claim 1 provides a system for selecting spectrum, including a licensed spectrum transceiver 116 configured to communicate over licensed spectrum, and an unlicensed spectrum transceiver 112 configured to communicate over unlicensed spectrum. (Fig. 1; and page 7, lines 18-23.) Also included in the system is a spectrum selector 108 configured to select the licensed spectrum transceiver 116 or the unlicensed spectrum transceiver 112 for communication, such as for communication over a network 120. (Fig. 1; page 5, lines 10-15; and page 8, lines 1-4.)

Similarly, independent claim 41 provides a method for selecting spectrum. The method includes the operations of configuring a licensed spectrum transceiver, such as licensed spectrum transceiver 116, to communicate over licensed spectrum, and configuring an unlicensed spectrum transceiver, such as unlicensed spectrum transceiver 112, to communicate over unlicensed spectrum. (Fig. 1; and page 7, lines 18-23.) In addition, a spectrum selector, such as spectrum selector 108, is configured to select the

licensed spectrum transceiver 116 or the unlicensed spectrum transceiver 112 for communication, such as for communication over a network 120. (Fig. 1; page 5, lines 10-15; and page 8, lines 1-4.)

### **Grounds of Rejection to Be Reviewed on Appeal**

1. Claims 1-10, 23-28, 41-48 and 55 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,694,414 to Smith et al. (hereinafter “Smith”).
2. Claims 11, 12 and 49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of U.S. Patent No. 6,873,607 to Hamada et al. (hereinafter “Hamada”).
3. Claims 14, 15 and 50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of U.S. Patent No. 6,940,824 to Shibusu (hereinafter “Shibusu”).
4. Claims 18-20, 52 and 53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of U.S. Patent No. 6,892,068 to Karabinis (hereinafter “Karabinis”).
5. Claim 22 and 54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of U.S. Patent No. 6,952,434 to Agannatharao et al. (hereinafter “Agannatharao”).

## **Argument**

### **Outline**

- I. Rejection of Claims 1-10, 23-28, 41-48 and 55 Under 35 U.S.C. § 102(b)
  - a. Claims 1 and 41 Are Allowable Because Smith Does Not Teach or Suggest Separate Licensed and Unlicensed Spectrum Transceivers
  - b. Claims 1 and 41 Are Allowable Because Smith Does Not Teach or Suggest a Spectrum Selector Configured to Select the Licensed or Unlicensed Spectrum Transceiver
  - c. Claims 2-10, 23-28, 42-48 and 55 Are Allowable Because Each Depends from an Allowable Independent Claim
- II. Rejection of Claims 11, 12, 14, 15, 18-20, 22, 49, 50 and 52-54 Under 35 U.S.C. § 103(a)
  - a. Claims 11, 12, 14, 15, 18-20, 22, 49, 50 and 52-54 Are Allowable Because Each Depends from an Allowable Independent Claim

## **I. Rejection of Claims 1-10, 23-28, 41-48 and 55 Under 35 U.S.C. § 102(b)**

Claims 1-10, 23-28, 41-48 and 55 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Smith. (Page 2 of the final Office action.) Thus, the final Office action indicates that Smith discloses each provision of independent claims 1 and 41. The Assignee respectfully disagrees with this assertion, as discussed below.

### **a. Claims 1 and 41 Are Allowable Because Smith Does Not Teach or Suggest Separate Licensed and Unlicensed Spectrum Transceivers**

More specifically, the final Office action alleges that the transmitter (Fig. 2) and the receiver (Fig. 3) of Smith, with further reference to Figs. 8-10, and column 3, lines 8-18, anticipate the licensed spectrum transceiver and the unlicensed spectrum transceiver of independent system claim 1. In dependent method claim 41 provides similar limitations. The Assignee respectfully disagrees with the allegation.

Generally, Smith discloses a *dual-mode* transmitter (Fig. 2) and a *dual-mode* receiver (Fig. 3). (See also column 6, lines 23-35; and column 7, lines 14-35.) The transmitter and receiver are “dual-mode” in the sense that each may be operated in either a “cellular” (i.e., narrowband) mode, or a “microcellular” (i.e., spread-spectrum) mode. (Column 5, lines 50-67.)

Such a receiver and transmitter are distinguished from the licensed spectrum transceiver and the unlicensed spectrum transceiver of claims 1 and 41. Each of the transmitter and receiver of Smith only provide for a *single* transmitter or receiver capable of *switching* between narrowband and spread-spectrum modes, not *two separate transceivers*, one for licensed spectrum, and another for unlicensed spectrum, as provided for in claims 1 and 41. (See again Figs. 2 and 3; column 6, lines 23-25; and column 7, lines 14 and 15.) In other words, Smith does not disclose *two separate transceivers*, each configured to communicate over *separate spectra*, as provided for in claims 1 and 41: “a licensed spectrum transceiver *configured to communicate over licensed spectrum*,” and “an unlicensed spectrum transceiver *configured to communicate over unlicensed spectrum*.” (Emphasis supplied.)

In its Response to Arguments, the final Office action argues that since the dual-

mode transmitter of Fig. 2 and the dual-mode receiver of Fig. 3 of Smith are integrated in a single telephone handset 410 of Fig. 8, the “telephone handset 410 performs transceiver’s functions.” (Page 8 of the final Office action.) However, whether the handset 410 performs transceiver *functions* is relatively unimportant in the context of claims 1 and 41. In judging patentability, the true issue is whether the *structure* recited in these claims is taught or suggested in Smith. As stated above, Smith, by its own language, explicitly teaches a dual-mode transmitter and a dual-mode receiver. Combining these two structures within a single telephone handset 410 yields at most *one dual-mode transceiver*, not a licensed spectrum transceiver and an unlicensed spectrum transceiver.

The Response to Arguments, as well as the associated advisory action dated 8/21/06 (hereinafter “the advisory action”), further indicate that Smith, by virtue of its narrowband modulator 113, narrowband demodulator 213, spread spectrum modulator 111 and spread spectrum despreader 215, discloses both an unlicensed spectrum transceiver and a licensed spectrum transceiver. “Thus, telephone handset 410 comprises *two separate transceivers*: licensed transceiver and unlicensed transceiver.” (Page 8 of the final Office action; continuation sheet of the advisory action.) The Assignee respectfully disagrees. For example, for Smith to disclose two separate transceivers as provided for in claims 1 and 41 of the present application, narrowband modulator 113 and spread spectrum modulator 111 must reside in separate transmitters, one for each of two separate transceivers. However, Smith makes clear that they reside within *one dual-mode transmitter*. (See, for example, column 6, lines 23 and 24.) Moreover, Fig. 2 indicates that the narrowband modulator 113 and the spread spectrum modulator 111 *share* an RF power amplifier 115 and an adjustable bandpass filter 117, both of which Smith indicates are necessary to transmit the narrowband and spread spectrum signals. (Column 6, line 63, to column 7, line 13.) Thus, the narrowband modulator 113 and spread spectrum modulator 111 do not represent separate transmitters, but instead reside within the single transmitter of Fig. 2, and hence within at most a single transceiver. Similarly, narrowband demodulator 213 and spread spectrum despreader 215 of Smith, which share the tunable bandpass filter 117, preamplifier 203 and frequency converter 209 of Fig. 3, reside within a single receiver, and thus within at most a single transceiver.

Due to the fact that Smith discloses one dual-mode transmitter and one dual-mode receiver, instead of separate transceivers, the Smith transmitter and receiver can only communicate in *either* narrowband *or* spread-spectrum mode *at any particular point in time*. (See, for example, column 6, lines 47-51; and column 8, lines 9-14.) The advisory action maintains that “this argument is not relevant because claims 1 and [41] do not recite both licensed and unlicensed spectrum are used for communicating at the same time.” (Continuation sheet of advisory action.) The Assignee respectfully disagrees regarding the relevance of this argument. While the independent claims do not specifically indicate communicating over licensed and unlicensed spectrum simultaneously, the fact that claims 1 and 41 recite a structure capable of such functionality while the Smith device does not indicates that the two structures in question are fundamentally different, thus further emphasizing the allowability of claims 1 and 41.

Further, while Smith generally indicates the use of licensed and unlicensed frequency bands (see abstract), the two modes in which its transmitter and receiver are operated are necessarily “narrowband” mode and “spread-spectrum” mode, as indicated above. (See column 6, lines 52-55; and column 7, lines 37-39.) These two modes do not correspond with “licensed spectrum” and “unlicensed spectrum,” as provided for in claims 1 and 41.

Thus, for at least these reasons, the Assignee contends independent claims 1 and 41 are allowable, and such indication is respectfully requested.

**b. Claims 1 and 41 Are Allowable Because Smith Does Not Teach or Suggest a Spectrum Selector Configured to Select the Licensed or Unlicensed Spectrum Transceiver**

The final Office action also indicates that the mode controller 103 of the Smith transmitter and receiver anticipates the spectrum selector of claim 1 and 41, which is “configured to select the licensed transceiver or the unlicensed transceiver for communication.” (Page 2 of the final Office action.) However, according to Smith, the mode controller 103 selects between narrowband and spread-spectrum *modes* in both the transmitter and receiver. (Column 6, lines 47-55; and column 7, lines 37-50.) Thus, the

mode controller 103 is not configured to select a licensed *transceiver* or an unlicensed *transceiver*, as set forth in claims 1 and 41.

The Response to Arguments of the final Office action, as well as the advisory action, indicate that the mode controller 103, via the mode select switch 104, directs an information signal to either the narrowband modulator 113 or the spread spectrum modulator 111, and selects reception of narrowband or spread spectrum modulation. (Page 9 of the final Office action; continuation sheet of the advisory action.) However, as stated above, the mode controller 103 does not select one transceiver or another, as provided for in claims 1 and 41, since the modulators 111, 113 belong to the same transmitter, and the demodulator 213 and despreader 215 reside within a single receiver. Instead, the mode controller 103 *alters the mode* in which the transmitter and receiver operate, as mandated by the apparatuses disclosed in Smith.

Further, as described above, the mode controller 103 selects between *narrowband* mode and *spread spectrum* mode, and *not* between an *unlicensed spectrum transceiver* and a *licensed spectrum transceiver*, as provided for in claims 1 and 41. (See column 6, lines 52-55; and column 7, lines 37-39.)

Thus, on the basis of at least these additional reasons, the Assignee respectfully asserts that independent claims 1 and 41 are allowable in view of Smith, and such indication is respectfully requested.

**c. Claims 2-10, 23-38, 42-48 and 55 Are Allowable Because Each Depends from an Allowable Independent Claim**

Claims 2-10 and 23-38 depend from independent claim 1, and claims 42-48 and 55 depend from independent claim 41, thus incorporating the provisions of their corresponding independent claims. Thus, the Assignee asserts that claims 2-10, 23-38, 42-48 and 55 are allowable for at least the reasons provided above in conjunction with claims 1 and 41, and such indication is respectfully requested.

**II. Rejection of Claims 11, 12, 14, 15, 18-20, 22, 49, 50 and 52-54 Under 35 U.S.C. § 103(a)**

Claims 11, 12 and 49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of Hamada. (Page 5 of the final Office action.) Also, claims 14, 15 and 50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of Shibutani. (Page 5 of the final Office action.) Claims 18-20, 52 and 53 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of Karabinis. (Page 6 of the final Office action.) Finally, claims 22 and 54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of Agannatharao. (Page 7 of the final Office action.) In making these rejections, the final Office action relies upon its application of Smith to independent claims 1 and 41. (Page 2 of the final Office action.)

**a. Claims 11, 12, 14, 15, 18-20, 22, 49, 50 and 52-54 Are Allowable  
Because Each Depends from an Allowable Independent Claim**

Claims 11, 12, 14, 15, 18-20 and 22 depend from independent claim 1, and claims 49, 50 and 52-54 depend from independent claim 41, thus incorporating the provisions of their corresponding independent claims. Thus, the Assignee asserts that claims 11, 12, 14, 15, 18-20, 22, 49, 50 and 52-54 are allowable for at least the reasons provided above in conjunction with claims 1 and 41, and such indication is respectfully requested.

### **Conclusion**

In light of the foregoing remarks, the Assignee submits that the final rejections of claims 1-12, 14, 15, 18-20, 22-28, 41-50 and 52-55 are erroneous, and respectfully requests their reversal.

The Office is hereby authorized to charge Deposit Account No. 21-0765 the requisite fees for this appeal brief (37 C.F.R. §§ 41.37(a)(2) and 41.20(b)(2)) and the attendant notice of appeal (37 C.F.R. §§ 41.61(a)(1) and 41.20(b)(1)). The Assignee also requests a one-month extension of time under 37 C.F.R. § 1.136(a), and authorizes the Office to charge the associated fee (37 C.F.R. § 1.17(a)). The Assignee believes that no additional fees are due with respect to this filing. However, should the Office determine that additional fees are necessary, the Office is hereby authorized to charge Deposit Account No. 21-0765.

Respectfully submitted,

Date: 9/13/06



Kyle J. Way, Reg. No. 45,549  
Setter Roche LLP  
Telephone: (720) 562-2283  
E-mail: kyle@setterroche.com

**Correspondence address:**

**CUSTOMER NO. 28004**

Attn: Harley R. Ball  
6391 Sprint Parkway  
Mailstop: KSOPHT0101-Z2100  
Overland Park, KS 66251-2100

## **Claims Appendix**

The following is a list of claims involved in this appeal:

1. A system for selecting spectrum comprising:
  - a licensed spectrum transceiver configured to communicate over licensed spectrum;
  - an unlicensed spectrum transceiver configured to communicate over unlicensed spectrum; and
  - a spectrum selector configured to select the licensed transceiver or the unlicensed transceiver for communication.
2. The system of claim 1 wherein the spectrum selector is configured to select the licensed transceiver or the unlicensed transceiver to transmit a communication.
3. The system of claim 2 wherein the spectrum selector is configured to select the other of the licensed transceiver or the unlicensed transceiver to transmit a second communication.
4. The system of claim 1 wherein the spectrum selector is configured to receive a communication from the licensed transceiver or the unlicensed transceiver.
5. The system of claim 4 wherein the spectrum selector is configured to receive another communication from the other of the licensed transceiver or the unlicensed transceiver.
6. The system of claim 1 wherein the spectrum selector is configured to transmit at least one communication to at least one member of a group consisting of the unlicensed transceiver and the unlicensed transceiver.
7. The system of claim 6 wherein:
  - the spectrum selector is configured to transmit a first communication to the unlicensed transceiver and a second communication to the licensed transceiver;

the unlicensed transceiver is configured to transmit the first communication; and  
the licensed transceiver is configured to transmit the second communication.

8. The system of claim 1 wherein the spectrum selector is configured to receive at least one communication from at least one member of a group consisting of the unlicensed transceiver and the licensed transceiver.

9. The system of claim 8 wherein:

the unlicensed transceiver is configured to receive a first communication;  
the licensed transceiver is configured to receive a second communication; and  
the spectrum selector is configured to receive the first communication from the unlicensed transceiver and to receive the second communication from the licensed transceiver.

10. The system of claim 1 wherein the spectrum selector is configured to operate in a switching mode.

11. The system of claim 10 wherein the spectrum selector is configured to select a first spectrum for operation and to select a different spectrum for operation if an interference event occurs for the first spectrum.

12. The system of claim 10 wherein the spectrum selector is configured to transmit all communications for a first spectrum until an interference event occurs, and thereafter, to transmit at least a portion of communications for a second spectrum.

13. (Objected to)

14. The system of claim 10 wherein the spectrum selector is configured to select a first spectrum for transmission of at least one communication for a guaranteed service.

15. The system of claim 14 wherein the first spectrum comprises licensed spectrum.

16, 17. (Objected to)

18. The system of claim 1 wherein the spectrum selector is configured to operate in a capacity mode.
19. The system of claim 18 wherein the spectrum selector is configured to select a first spectrum for operation and to select a different spectrum for operation if a capacity event occurs for the first spectrum.
20. The system of claim 18 wherein the spectrum selector is configured to transmit all communications for a first spectrum until a capacity event occurs, and thereafter, to transmit at least a portion of communications for a second spectrum.

21. (Objected to)

22. The system of claim 1 wherein the spectrum selector is configured to process a communication with an inverse multiplexing asynchronous transfer mode protocol.
23. The system of claim 1 wherein the spectrum selector is configured to process a communication with at least one member of a group consisting of encryption, de-encryption, coding, decoding, modulation, and demodulation.
24. The system of claim 1 further comprising a base station within a range of which the spectrum selector exists.
25. The system of claim 1 further comprising an antenna configured to transmit a communication via a spectrum or receive the communication via the spectrum.
26. The system of claim 1 further comprising an access device configured to communicate with the spectrum selector.

27. The system of claim 26 further wherein the access device is configured to transmit, receive, or transmit and receive.

28. The system of claim 1 wherein the spectrum selector is configured to integrate a communication at a service level.

29-40. (Withdrawn)

41. A method for selecting spectrum comprising:

configuring a licensed spectrum transceiver to communicate over licensed spectrum;

configuring an unlicensed spectrum transceiver to communicate over unlicensed spectrum; and

configuring a spectrum selector to select the licensed transceiver or the unlicensed transceiver for communication.

42. The method of claim 41 further comprising selecting the licensed transceiver or the unlicensed transceiver to transmit a communication.

43. The method of claim 42 further comprising selecting the other of the licensed transceiver or the unlicensed transceiver to transmit a second communication.

44. The method of claim 41 further comprising receiving a communication from the licensed transceiver or the unlicensed transceiver.

45. The method of claim 44 further comprising receiving another communication from the other of the licensed transceiver or the unlicensed transceiver.

46. The method of claim 41 further comprising:

transmitting from the spectrum selector a first communication to the unlicensed

transceiver and a second communication to the licensed transceiver;  
transmitting the first communication from the unlicensed transceiver; and  
transmitting the second communication from the licensed transceiver.

47. The method of claim 41 further comprising:  
receiving a first communication at the unlicensed transceiver;  
receiving a second communication at the licensed transceiver; and  
receiving the first communication from the unlicensed transceiver and receiving  
the second communication from the licensed transceiver, both at the spectrum selector.

48. The method of claim 41 further comprising operating the spectrum selector in a  
switching mode.

49. The method of claim 48 further comprising selecting a first spectrum for operation  
and selecting a different spectrum for operation if an interference event occurs for the  
first spectrum.

50. The method of claim 48 further comprising selecting a first spectrum for  
transmission of at least one communication for a guaranteed service.

51. (Objected to)

52. The method of claim 41 further comprising operating the spectrum selector in a  
capacity mode.

53. The method of claim 52 further comprising selecting a first spectrum for operation  
and selecting a different spectrum for operation if a capacity event occurs for the first  
spectrum.

54. The method of claim 41 further comprising processing a communication with an  
inverse multiplexing asynchronous transfer mode protocol.

55. The method of claim 41 further comprising processing a communication with at least one member of a group consisting of encryption, de-encryption, coding, decoding, modulation, and demodulation.

56. (Allowed)

### **Evidence Appendix**

No other evidence has been submitted by the Assignee or entered by the Examiner.

**Related Proceedings Appendix**

There are no prior or pending related appeals or interferences.